FACTORS INFLUENCING ACHIEVEMENTS OF EIGHTH GRADE GRADUATES IN RURAL SCHOOLS

by

THEODORE ALLEN FLECK

B. S., Kansas State College
of Agriculture and Applied Science, 1929

A THESIS

submitted in partial fulfillment of the

requirements for the degree of

MASTER OF SCIENCE

Department of Education

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1938

Document
LD
2668
T4
1938
F54
C.2

TABLE OF CONTENTS

PAGE

INTRODUCTION.. 1

METHODS AND MATERIALS.. 6

ACHIEVEMENT COMPARED TO ENROLLMENT.................................. 8

ACHIEVEMENT COMPARED TO QUALIFICATIONS OF TEACHERS............. 22

CONCLUSIONS... 31

ACKNOWLEDGMENTS... 35

BIBLIOGRAPHY.. 36

INTRODUCTION

Much thought has been given to the factors in the achievements of school children. Among the factors is the type of school attended. In Kansas many eighth grade pupils attend rural schools; in fact (1) 83,001 such pupils were in attendance in 7,253 rural schools in 1937.

The range in size of these rural schools varies from one pupil to as many as thirty or more. An important factor is the achievements of the child as related to the size of the school.

The writer's interest in achievement and measuring of grades grew out of courses in educational measurements, and problems in educational measurements. The lack of standardization in grading systems enters into a study of this nature, however, modern study in the field of educational measurement will do a great deal to cause the achievements of pupils to become more standardised.

A number of surveys and studies have been carried out to compare the relative achievement of rural and graded school graduates. The writer has never encountered such a survey in the one-room rural schools alone.

A comparison of the achievements of eighth grade pupils in rural schools and graded schools was made by the Emporia Teachers College, in 1930, using the Every Pupil Scholarship tests as a testing medium. Nineteen hundred and twenty-one pupils in graded schools and 1,611 in rural schools were scored. McIntosh and Schrammel (2) who conducted the test, found that the distributions of the scores of the 1,921 pupils in graded schools and of the 1,611 pupils in rural schools are somewhat the same except that the measures of central tendency are higher for the graded group. The two groups were also alike in variability, although there is a slight advantage in favor of the rural group.

When the scores of the highest 31 per cent of the pupils were compared, the quartile scores of the pupils in the graded schools were higher in every subject than those of the pupils in the rural schools. The mean scores of the pupils in the graded schools were higher in every subject than those of the pupils in rural schools. A similar study was made in Teachers College, Syracuse University, New York (3) by Clem and Hovey. They measured the comparative achievements of village-school pupils and rural school pupils. Their study included 193 village school and 196 rural school pupils in and near three typical villages in New York State. Their study brings out the fact that the means of the village group excel the rural group in every subject.

The highest mean marks for both village school and rural school groups are in spelling, the lowest mean marks for both village school and rural school groups are in English. The difference between the mean marks ranges from 1.71 in English to 3.65 in history. Standard deviations are larger for the village schools than for the rural schools.

A little light in regard to achievements of grade school pupils in one room, and two to four room rural schools is shown in a study by Odell (4) of the University of Illinois. He found there was practically no difference in the average progress of the pupils in the one and the two to four room rural schools, except that in the former, more pupils made fast progress and were therefore accelerated. This resulted in slightly greater average progress and less retardation in the one room schools.

Covert (5) points out that one teacher working alone with all grades and with pupils of all ages cannot be expected to accomplish results equal to the results made possible by the specialization of the well graded school; that one room schools are taught by the least trained and youngest teachers, and that the social advantages of centralized schools give them superiority in training for life that the small isolated schools cannot reach.

Covert found that 76.5 per cent of the medians for reading in eight states are above the one-teacher rural school medians as compared to the graded schools. Likewise, the same survey showed 87.9 per cent of the arithmetic medians superior to the small rural school arithmetic medians, and 80.6 per cent of the spelling medians superior in large schools when compared to the medians in the small schools.

The results of a majority of studies, a few of which have been reviewed here, indicate that pupils trained in graded schools acquire a better mastery of the fundamentals of learning than those trained in one teacher schools; a few studies show the opposite; although Covert says at least one extensive study, although showing higher scores for pupils of graded schools than for those of rural ones, when converted into achievement quotients, indicate greater effectiveness in the small type school.

Another important factor that goes to determine the achievements of the child is the qualifications of the teacher.

The writer, having spent ten years in public school work, the last six being in administration, has often felt a keen desire to know how the qualifications of teachers affect pupil achievements.

Sherwood (6) found that an important factor in the count against instruction in the rural schools is that nearly all beginning teachers are placed there. All other things being equal, an experienced teacher is better than an inexperienced teacher. The beginning teacher is forced to seek a position in the rural schools, because in almost all cities only applicants with one or more years of successful teaching experience are given favorable consideration. This gives the urban child an advantage over the rural child.

Hagie (7) states that the elementary school teacher continues to be the final court of appeal on questions involving almost every field of human knowledge. Logically then, the elementary school teacher should have a broader and more general fund of informational knowledge than is required of the high school teacher. It is a notorious fact that in most of the American Commonwealths one may secure a certificate to teach in the common schools with very little training above high school graduation, and in some instances, with even less than that.

Andrick (8) in summarizing his study on grades in graded schools and rural schools in some central Kansas towns brought out the fact that as long as marks are used as a source of pupil stimulation, a great injustice is being done to the pupils by setting up such goals, then placing their standards at such a level that they can be reached with little effort. The pupil who has gone through the elementary school under such conditions is bound to be found wanting when tested for achievements. He has been able to reach a satisfying level of teacher marks without achieving a proportionate amount of learning.

Two factors that will tend to have a direct bearing upon rural school children, then, are size of schools and training of teachers. Therefore, the purposes of this study are to determine as far as possible the answers to the following questions:

1. Does the size of the rural school make any appreciable difference upon the grades earned by rural school graduates, and if so, which enrollment group has the advantage?
2. How do the grades of the three groups compare from year to year, over a three-year period?
3. Do rural school graduates of Riley County show any advantages over those of Clay County?
4. What has the qualifications of the teacher to do with grades earned?
5. What subjects do rural school children have the greatest difficulty with?
6. Will achievement of pupils justify our rural schools in regard to their size and the qualifications of their teachers?

METHODS AND MATERIALS

All of the scores in the eighth grade diploma examinations of the students enrolled in rural eight month schools in Riley County for three years, 1932 to 1935 inclusive, were recorded. Likewise the diploma examination grades were listed for a similar three-year period, 1935 to 1938 inclusive, in Clay County. Thus, diploma examination grades covering a period of six years were listed in Riley and Clay Counties. The fact that the scores for the same years were not listed in Clay County as in Riley County would cause the validity of comparisons between the counties to be somewhat questionable. However, the purposes of this study are to determine the relationship of achievements as to size of schools and qualifications of teachers.

This material was gathered from the offices of the two county superintendents, and was taken from the official county records.

The first step was to place each rural district into some typical enrollment group, in order to classify the districts by the size of their schools. Table 1 shows the total number of districts in each group, with the number of case grades made each year.

Table 1. Schools classified by groups.

County	Years	Group	Cases	Districts
Riley	1932-1935	1-10	785	80
"	" "	11-16	1487	81
"	" "	Over 16	1058	41
Clay	1935-1938	1-10	1196	75
"	" "	11-16	2049	97
"	" "	Over 16	1136	37

Into group one were placed those schools whose enrollments were from one to ten inclusive, in group two, 11 to 16 inclusive, and in group three, all those schools whose enrollments were over 16. In Riley County a total of 202 districts, and 4,381 grades were listed, while 3,228 grades were listed in 209 Clay County rural districts.

Into each enrollment group, final grades were recorded in the subjects of geography, physiology, Kansas history, reading and classics, spelling, agriculture, writing, arithmetic, language and grammar, United States history, and civil government. Since the writer wished to use a wide range of samples, a three-year period was covered in each of the two counties.

The final grades in the above-mentioned subjects are the average of the diploma examinations, plus the term grades of the pupil. The diploma examinations are compiled in the office of the State Superintendent of Public Instruction, and are passed out to the county superintendent, to be distributed to the various examination centers. Pupils in one county take the same tests as pupils in another county. The diploma examinations are graded by a group of competent, experienced teachers, appointed by the county superintendent. Generally, a qualified graded school principal has charge of administering the test, assisted by one or more experienced teachers.

The examination board consists of 10 or 11 members, the tests are graded at the county seat, or at several conveniently located high schools in the county. The chances of the human element to enter into grading diploma examinations are not significant as the tests are objective in nature.

The fact that the school of small enrollment gives more time to its study program and remedial work than schools of larger enrollment is shown in Table 2. Program 1 is the study program used in District 3, Wakefield, Kansas, for the year 1937-38; a school with a total enrollment of seven with only five grades, while program 2 is the daily program of district 72, a school of 17 enrollment, teaching all eight grades. The author used these programs to contrast the daily programs as to time in the large and small rural schools.

Thus, it is shown by program 2, Table 2, that an average of 10.3 minutes are allowed for each class. The remainder of the time is devoted to two recess periods, and two opening exercise periods.

In program 2, it is shown that an average of 15.5 minutes are allowed each class. The remainder of the time is devoted to recess, opening exercise, and remedial work. The difference in average time devoted to each class in the two schools is 5.2 minutes, which should have some bearing on achievement over a year's time.

ACHIEVEMENT COMPARED TO ENROLLMENT

Table 3 shows the mean grades for each of the 11 subjects for the school year 1934-1935, in Riley County. Twenty-six districts showed an enrollment of one to ten pupils, 31 districts enrolled 11 to 16 pupils, while 11 districts had an enrollment of over 16 pupils. In a survey of

Table 2. Daily Programs in Two Rural Schools.

Program 1, District 3.				Program 2, District 71.			
Time	Class	Min.	Grade	Time	Class	Min.	Grade
9 A.M.	Open. Ex.	15	All	9 A.M.	Open. Ex.	15	All
9:30	Soc. Studies	15	3-4	9:15	Soc. Study	10	1
9:45	" "	15	5-6	9:25	" " (T-T)	10	2
10	" "	15	7	9:25	" " (M-W-F)	10	3-4
10:30	Remedial	30	All	9:45	" " (T-T)	20	5-6
	RECESS	15	All	9:45	" " (M-W-F)	20	7-8
10:45	Arithmetic	15	3	10	Health (T-T)	15	7
11	"	15	4	10	Kansas H. (M-W-F)	15	7
11:15	"	15	5	10:10	Civil Gov.	10	8
11:30	"	15	6	10:20	Geog. (M-W-F)	10	6
11:45	"	15	7	10:20	Art (T-T)	10	All
12	Wash	15	All		RECESS		All
	NOON			10:30	Reading	10	1
1 P.M.	Open. Ex.	15	All	10:40	"	10	2
1:15	Reading	15	3	10:50	Agric. (M-W-F)	10	8
1:30	"	15	4	10:50	Am. H. (T-T)	10	7
1:45	"	15	5-6	11	Arithmetic	10	3
2:00	"	15	7	11:10	"	10	4
2:30	Music and Art	30	All	11:20	"	10	6
	RECESS	15	All	11:30	"	10	7
2:45	Language	10	3	11:40	"	10	8
2:55	"	10	4	11:55	Wash	5	All
3:05	"	10	5		NOON		All
3:15	"	10	6	1 P.M.	Open. Ex.	10	All
3:25	"	10	7	1:10	Numbers	5	1
4:00	Spell. (M-W-F)	35	All	1:15	"	5	2
4:00	Nat. Study (T-T)	35	All	1:20	Reading	10	3
				1:30	"	10	4
				1:40	"	10	5-6
				1:50	"	10	7-8
				2:00	Language	10	1-2-3
				2:10	"	10	4
				2:20	"	10	6
					RECESS		
				2:45	Am. H.	10	8
				2:55	Reading	5	1
				3	"	10	2
				3:10	Grammar	10	7
				3:20	"	10	8
				3:30	Geog.	10	7
				3:40	Music App. (M)	20	All
				3:40	Spell. (W-F)	20	All
				3:40	Writing (T-T)	20	All

this nature one would expect to find the higher grades being made in the small schools. As a whole, the tendency of the mean grades is to regress from the small to the larger schools. In geography the trend is quite perfect, however, the means of the middle group in physiology, Kansas history, reading and classics, and spelling are slightly higher than the means of group one. The greatest variation is in the case of writing, where group one has a mean of 80.44, and group three, a mean of 87.21, or a mean difference of 6.77. Geography, language and grammar, United States history, and civil government all show means that regress definitely from the small school to the large school.

In Table 4, for the school year 1933-1934 much the same evidence is shown as in the preceding table.

Physiology, agriculture, language and grammar, all show means that regress toward the larger schools. Geography, Kansas history, and spelling have higher means in the small school than the larger school, however, civil government shows a progressive mean in the three groups, which proves that either the students were superior in the larger schools or the quality of teaching was better for that year. Table 5, the final year, does not show any appreciable advantage of the small school over the larger one except that the means of physiology, reading and classics, spelling, agriculture, language and grammar are slightly larger than the means of the same subjects in group three, while the reverse is true in geography, Kansas history, writing, arithmetic, United States history, and civil government. Thus, Table 5 for 1934-1935 shows

Table 3. Mean of the 1924-1925 Grades. Riley County.

Group	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	District	Cases
1-10	84.17	87.50	81.00	80.86	90.12	85.25	80.44	75.00	80.12	89.12	90.13	26	209
11-16	81.07	85.04	86.04	75.40	86.16	85.54	77.55	76.37	78.55	87.00	80.20	31	547
Over 16	79.07	83.47	80.45	77.10	86.24	84.13	87.21	74.40	77.10	87.20	87.60	11	237

Table 4. Mean of the 1923-1924 Grades. Riley County.

Group	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	District	Cases
1-10	74.10	76.58	80.09	81.32	79.18	85.71	70.32	65.60	84.12	62.09	72.25	29	272
11-16	69.50	74.56	75.84	72.20	70.67	85.30	76.14	62.92	68.37	66.59	70.70	25	566
Over 16	71.38	72.94	79.10	81.74	77.50	85.36	77.47	68.98	50.60	65.47	81.44	15	327

that the achievements of eighth grade pupils were actually better in the larger rural schools. This again is due to superior teaching, or to the fact that superior pupils were more numerous in the larger rural schools.

Table 6 shows the mean of grades for all three years in Riley County, and it is from this table that we get definite information that achievement tends to regress from the smaller to the larger schools. The total mean of group one is 79.027, with group two having a mean 79.155, and group three having a mean of 79.39.

The mean of every subject for the three years in the smaller schools is larger than the mean for the larger schools, with the exception of writing, arithmetic, and civil government. It is interesting to note that the means in writing and civil government are progressive instead of regressive. In each of the three years, writing was inferior in the small schools in comparison to the large schools which makes it appear that writing achievement is best obtained in the larger rural schools.

Language and grammar appear to be the most difficult subjects for Riley County students over a three-year period, with a mean of 71.42 for the three groups. It also appears that students in small schools gain more achievement in language and grammar than in the larger schools, having a mean of 72.84 in group one, 71.77 in group two, and 69.64 in group three. One can safely infer that language and grammar need more time than is devoted to it in our larger rural schools. Arithmetic is the next subject with the greatest degree of difficulty, with an average of 72.03, and civil government third, with 74.29.

Table 5. Mean of the 1932-1933 Grades. Riley County.

Group	Geog.	Phys.	Kans. Hist.	Read. Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	Districts	Cases
1-10	76.83	85.67	79.37	86.83	80.11	81.00	85.52	75.25	75.31	79.54	79.69	25	302
11-16	79.93	87.71	81.80	88.69	82.41	82.64	87.22	76.38	75.78	81.06	80.72	25	579
Over16	80.56	85.59	81.50	86.67	77.80	80.27	88.20	76.07	72.13	80.67	80.75	17	271

Table 6. Mean of Grades for all Years. Riley County.

Group	Geog.	Phys.	Kans. Hist.	Read. Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U.S. Hist.	Civil Gov.	Mean	Cases
1-10	78.40	85.15	83.75	85.01	83.14	83.99	80.76	71.97	72.54	77.20	81.02	79.95	765
11-16	76.86	81.77	82.25	81.46	81.81	84.47	81.00	72.92	72.27	78.52	82.90	79.66	1487
Over 16	77.17	80.65	82.35	81.94	80.45	85.25	84.29	75.52	69.64	77.16	83.26	79.39	1058

The subject of greatest achievement for Riley County students for the three-year period, is agriculture, with an average of 83.90. Kansas history is next with an average of 82.76, writing is a close third, with an average of 82.02.

Table 7 shows a comparison of grades made by Riley County students for the three-year period. The average of all grades for the school year 1934-1935 is 83.34, 74.46 for 1933-1934, and back up to 81.22 for 1932-1933.

Table 8, Clay County shows a total of 25 districts with 407 grades tabulated, enrolling one to ten pupils, 33 districts with 759 grades in the 11 to 16 group, and nine districts with 352 grades in enrollments of over 16. Spelling and writing show the means of all three groups to regress from the small to large school, while the means of geography, Kansas history, reading and classics, spelling, writing, language and grammar, United States history, and civil government are all higher than the means for the same subjects in the large schools. Physiology, agriculture, and arithmetic show more achievement in the larger schools than in the small ones, however.

In Table 9, the mean of every subject is higher in the small school than in the large school, with the exception of agriculture. Reading and classics, and arithmetic show means that regress from the small to the large school.

The mean of every subject, in Table 10, is higher in the small school, compared to the large school, with arithmetic and Kansas history

Table 7. Grade Means Compared for Three Years. Riley County.

Subject	Group	1924-1925	1923-1924	1922-1923
Geography	1-10	84.17	74.13	76.88
	11-16	81.07	68.58	78.02
	Over 16	72.07	71.88	80.56
Physiology	1-10	87.30	76.08	85.07
	11-16	82.04	74.56	87.71
	Over 16	85.47	72.34	85.59
Kansas History	1-10	81	80.98	79.37
	11-16	86.04	78.34	82.80
	Over 16	86.45	79.10	81.50
Reading & Classics	1-10	80.88	81.52	86.35
	11-16	76.49	79.30	80.69
	Over 16	77.10	81.74	86.67
Spelling	1-10	90.12	70.18	80.11
	11-16	86.16	76.87	82.41
	Over 16	86.24	77.30	77.90
Agriculture	1-10	86.25	85.71	81
	11-16	85.24	85.52	82.84
	Over 16	84.13	85.38	80.27
Writing	1-10	80.44	76.52	85.52
	11-16	77.58	76.54	87.22
	Over 16	87.21	77.47	86.30
Arithmetic	1-10	75	61.68	75.23
	11-16	76.57	65.82	76.39
	Over 16	74.40	68.88	76.67
Language Grammar	1-10	80.12	64.16	76.51
	11-16	73.55	62.57	76.76
	Over 16	77.10	59.68	77.13
U. S. History	1-10	89.12	62.95	79.54
	11-16	87.60	66.99	81.06
	Over 16	87.30	61.47	80.67
Civil Government	1-10	80.12	75.25	79.69
	11-16	88.20	79.79	80.72
	Over 16	87.60	81.44	80.73
Average		83.34	74.46	81.22

Table 5. Mean of the 1937-1938 Grades. Clay County.

Group	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	District	Cases
1-10	90.16	87.75	86.05	89.75	88.57	87.11	88.50	87.08	86.32	87.22	90.11	25	407
11-16	91.58	91.51	87.45	86.28	88.66	91.43	87.45	88.13	88.60	91.42	91.54	35	789
Over 16	88.91	88.02	85.59	87.94	85.59	88.50	84.34	87.44	85.51	88.05	88.56	9	242

Table 6. Mean of the 1936-1937 Grades. Clay County.

Group	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	District	Cases
1-10	85.64	85.36	90.08	89.60	91.34	88.30	92.70	90.16	87.10	89.70	89.81	21	516
11-16	90.10	87.35	90.84	86.70	88.09	87.84	90.51	89.12	90.17	84.41	90.08	30	694
Over 16	88.81	88.85	87.65	81.46	90.08	88.03	86.09	90.42	86.27	84.38	88.08	10	280

showing the greatest variation. Geography, Kansas history, agriculture, arithmetic, and language and grammar each show means that regress to the larger school.

Table 11 shows the means of grades for all years in Clay County, involving 3,328 cases from 100 districts. The mean of group one is 89.079 while that of group three is 87.483 showing group one to have an advantage of 1.596. However, the mean of group two is slightly larger than group one, being .719 of a point better in achievement. Every subject, with the exception of agriculture, has a higher mean in the small schools than in the large schools.

The subjects that present the greatest difficulty for Clay County pupils are language and grammar with a mean of 87.13, and arithmetic with a mean of 87.21, while spelling and geography present the least difficulty with means of 91.17 and 89.64, respectively.

It is interesting to note that language and grammar and arithmetic present the greatest difficulty in both counties.

Table 12 is a comparison of grades in Clay County for the three-year period. The average of all grades for 1937-1938 being 88.17, 89.13 for 1936-1937, and 88.84 for 1935-1936.

Table 13 shows a comparison by groups of the mean grades in both counties for the three-year period in each subject. A most interesting fact is revealed in this table when one notes that in every instance, the mean grade in Clay County surpasses that in Riley County. However, as the grades recorded in Clay County were not for the same years as those in Riley County, the inference cannot be made that Clay County

Table 10. Mean of the 1935-1936 Grades. Clay County.

Group	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	Dis- tricts	Cases
1-10	90.45	88.00	88.01	90.35	94.58	88.71	90.85	87.00	87.37			19	173
11-16	88.81	88.40	88.57	84.08	94.12	87.00	89.82	84.54	87.48			24	230
Over 16	88.29	85.59	84.57	88.38	94.25	86.04	91.41	85.87	85.37			16	450

Table 11. Mean of Grades for all Years. Clay County.

Group	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	Mean	Cases
1-10	90.08	88.66	88.31	89.87	91.60	88.04	90.40	87.74	87.10	93.00	88.81	88.079	1138
11-16	90.16	88.00	88.67	90.05	91.69	88.76	89.88	87.52	89.60	92.94	90.80	89.009	2040
Over16	88.67	87.69	85.97	86.09	89.97	88.12	87.40	86.58	85.65	87.48	88.74	87.495	1136

Table 12. Grade Means Compared For Three Years. Clay County.

Subject	Group	1937-1938	1936-1937	1935-1936
Geography	1-10	91.16	89.64	90.45
	11-16	91.52	90.18	83.61
	Over 16	88.81	88.51	88.29
Physiology	1-10	87.75	89.86	88
	11-16	91.21	87.33	85.40
	Over 16	88.62	88.05	85.59
Kansas History	1-10	86.05	90.07	90.41
	11-16	87.46	90.84	86.37
	Over 16	85.60	87.66	84.67
Reading & Classics	1-10	88.75	82.60	90.15
	11-16	86.28	86.79	85.02
	Over 16	87.94	81.46	86.88
Spelling	1-10	88.37	91.84	94.15
	11-16	88.88	92.89	84.12
	Over 16	85.59	90.08	86.25
Agriculture	1-10	87.11	88.30	89.71
	11-16	91.45	87.84	87
	Over 16	89.80	88.08	85.40
Writing	1-10	88.50	89.70	91.55
	11-16	87.45	90.51	89.27
	Over 16	84.34	86.64	91.41
Arithmetic	1-10	87.06	89.15	87
	11-16	88.78	89.12	84.54
	Over 16	87.44	86.42	85.87
Language Grammar	1-10	88.12	87.10	87.87
	11-16	89.80	90.17	87.45
	Over 16	85.31	86.27	90.87
U. S. History	1-10	87.22	89.79	
	11-16	91.42	94.41	
	Over 16	86.06	88.88	
Civil Government	1-10	90.11	87.81	
	11-16	91.54	90.05	
	Over 16	88.56	88.32	
Average		88.17	89.13	88.84

achievements are superior to Riley County. Perhaps teachers grade more liberally in Clay County, as a study in the county superintendent's office revealed the fact that most of our Clay County rural teachers are teaching with a normal training preparation only. Better trained teachers result in truer measures of pupil achievement.

In 1934-1935, a total of 66 rural districts in Riley County employed 31 teachers with normal training certificates, 11 with county certificates, 17 with state, and seven with life certificates.

Clay County, in 1937 reported 88 rural districts employing 57 teachers with normal training certificates, 21 with county, two with three-year state, four with 60-hour, and four with life certificates. In comparing the certificates of teachers for the two years, 46.9 per cent of Riley County teachers taught with normal training certificates, compared to 60.2 per cent in Clay County, 16.7 per cent taught in Riley County with county certificates to Clay County's 23.9 per cent, and 25.7 per cent taught with a three-year state in Riley County compared to 2.3 per cent in Clay County, while 10.6 per cent taught with a life certificate, compared with Clay County's 4.5 per cent.

The greatest variation in comparing achievements of the two counties occur in the subjects of arithmetic, language and grammar, United States history, and geography. Kansas history and agriculture offer the least variation in each group. Those subjects that require the greatest teaching skill, as language and grammar and arithmetic, show the greatest variation.

Table X. Comparison of Mean Grades of Riley and Clay Counties.

Subject	Riley	Clay	Cases		Districts		Mean
			Riley	Clay	Riley	Clay	Diff.
Geography	78.40	90.08	64	115	80	71	11.68
	76.86	90.16	82	199	81	71	13.30
	77.17	88.67	121	114	41	57	11.50
Physiology	82.16	88.30	64	115	80	71	5.84
	81.77	88.00	130	199	81	71	7.88
	80.63	87.60	122	114	41	57	7.00
Kansas History	83.75	88.31	64	110	80	71	4.56
	82.33	88.87	120	192	81	71	6.34
	82.35	85.07	120	108	41	57	2.62
Reading & Classics	82.01	88.89	72	116	80	71	6.88
	81.46	90.08	138	199	81	71	8.67
	81.84	86.09	88	114	41	57	4.25
Spelling	83.14	91.69	72	115	80	71	8.55
	81.31	91.36	157	199	81	71	10.05
	80.45	90.07	87	114	41	57	9.62
Agriculture	83.99	89.04	71	115	80	71	5.05
	84.47	88.76	157	199	81	71	4.29
	85.25	88.13	87	114	41	57	5.12
Writing	80.76	89.85	71	115	80	71	9.09
	81	89.26	136	199	81	71	8.26
	84.29	87.48	57	114	41	57	3.19
Arithmetic	71.97	87.74	71	114	80	71	15.77
	72.92	87.32	144	200	81	71	14.40
	73.32	86.52	96	114	41	57	13.20
Language	72.54	87.10	71	115	80	71	14.56
	72.27	86.70	137	199	81	71	14.43
	69.64	85.65	96	114	41	57	16.01
U. S. History	77.20	89	71	64	80	71	11.80
	78.52	92.94	136	132	81	71	14.42
	77.15	87.45	96	58	41	57	10.30
Civil Government	81.02	89.81	71	64	80	71	8.79
	82.90	90.80	136	132	81	71	7.90
	83.28	88.74	96	58	41	57	5.46

Figure 1 is a bar graph, comparing the means of all the subjects for the three-year period in the two counties. It will be noted that achievements of Clay County students are much superior to Riley County students, and that this factor is no doubt due to the wide range in teachers' marks used in the two counties. However, no valid comparison can be made, as the grades taken for Riley County were not for the same years as those in Clay County.

Arithmetic, and language and grammar present the greatest variation, with Kansas history and agriculture the least variation, when one compares the two counties. Arithmetic, and language and grammar also, are the most difficult subjects for Riley County students, with Kansas history and agriculture the easiest. Arithmetic, and language and grammar are also the most difficult for Clay County students, but spelling and United States history are the least difficult.

ACHIEVEMENT COMPARED TO QUALIFICATIONS OF TEACHERS

Believing there to be a direct relationship between the qualifications of the teacher and achievement of pupils, the author analyzed the grades of Riley County, and compared them to the training of the teachers. Table 14 shows the groups, number of teachers and districts tabulated in Riley County for 1932 to 1935 inclusive, along with the number of cases of grades in each group.

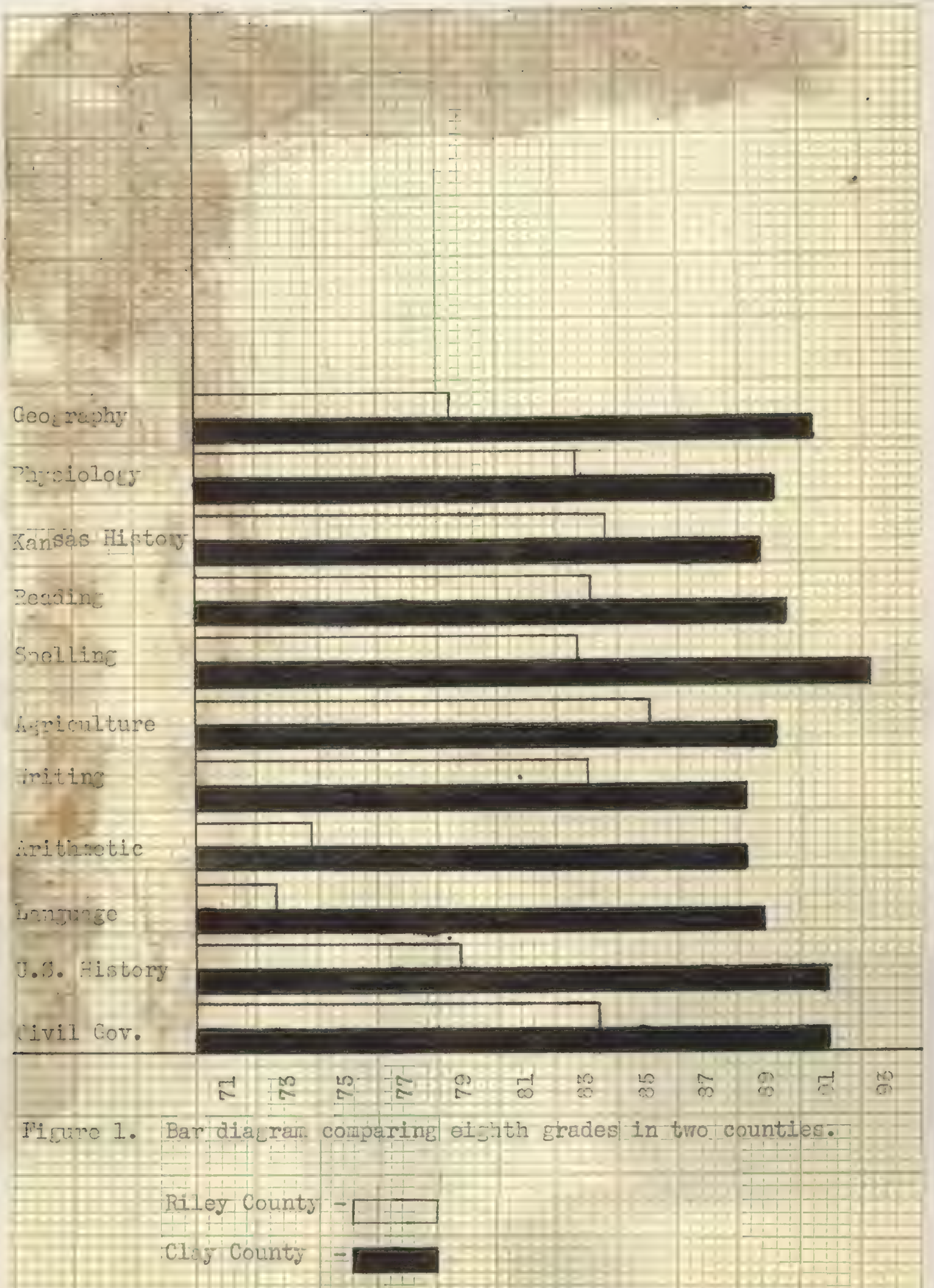

Figure 1. Bar diagram comparing eighth grades in two counties.

Table 14. Qualifications of Riley County Rural Teachers.

Qualifications	Number of Teachers	Districts	Cases of Grades
High School	52	52	707
1-15 College hrs.	33	33	582
16-30 " "	49	49	811
31-60 " "	29	29	366
Over 60 " "	37	37	757

Baldwin (9) states that the problem of preparing one room teachers will persist, few will hazard a guess how long, but in all likelihood well beyond the close of the twentieth century. To sum up the future in the preparation of teachers of one room rural schools, Baldwin says that while they may grow less, we shall have them with us long enough, and in sufficient numbers to justify our giving them far more attention than they have yet received.

In 1952, Riley County had a total of 66 rural districts with eighth grade pupils, and the possibility of any immediate consolidation seems to be remote.

Hanford (10) states that we find rural teachers with no college training graduating boys and girls from the eighth grade and these boys and girls going to our towns and cities to enter the high schools, where they will sit beside and recite with the graduates of the eighth grades in those systems where all of the elementary teachers have had at least sixty hours of college training. This inequality of preparation will continue, until we demand rural teachers to be as thoroughly trained for their work as are the elementary teachers in all other schools.

A recent report from the State Department of Education of New York shows that the rural districts use sixty-four per cent of all new teachers in that state. It is high time that our rural schools cease to be the dumping ground for those who lack experience, cannot qualify, or who fail to secure positions in graded systems. We need a single standard of qualifications for all teachers with special preparation for the positions they are to occupy.

Hacker (11) states that the average elementary rural teacher in the United States has only about four months of training beyond high school graduation.

In Table 16, the qualifications of Riley County teachers are divided into five groups, high school, one to fifteen college hours, 16 to 30 college hours, 31 to 60 college hours, and those with over 60 college hours of training. Higher mean grades were made in every subject except geography, physiology, and writing in schools where the qualifications were over 60 hours, when compared to the high school qualification group. The mean difference in geography is 1.39, while that in physiology and writing is only .46 and .54 respectively. In group two, those with one to fifteen college hours, every subject has a higher mean than the high school qualification group. Those in group three, with 16 to 30 college hours, have lower means in agriculture, writing, and language and grammar when compared to the high school group. Group four, with 31 to 60 college hours, has a lower mean in only spelling and agriculture. A study of the table reveals the fact that in almost all cases the better achievement is made when the teacher has the better qualifications.

In Table 16, geography, physiology, Kansas history, agriculture, language and grammar, and civil government all show superior achievement when the 60-hour group is compared to the high school qualification group. In physiology, the means progress in every case from the high school group to the best prepared group. Progression can also be noted in Kansas history, arithmetic, and language and grammar in all five groups except the last.

It will be noted from Table 17 that achievement of students in all subjects, with the exception of Kansas history and reading and classics, was highest where the teacher had the highest qualifications in comparison to high school qualifications. The subjects of greatest variation are arithmetic and grammar, which is probably due to the fact that the best instruction of such subjects comes from the best qualified teachers. These subjects are also the hardest to teach. In Kansas history and reading and classics, the teacher with high school qualifications will likely have as much chance as teachers of higher qualifications, due to the nature of the subject.

Table 18 shows the mean of grades for all three years in Riley County. A mean of 77.48 was made in all grades in the high school group, as compared with 79.90, being made in the 'over 60 college hour group' or a difference of 2.42 between the low qualification and high qualification. However, group four has a mean difference of .59 lower than group two. The means of each group do not progress from the low

Table 15. Mean of Grades as to Qualifications. Riley County, 1934-1935.

Qualifications	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	Cases	District
High School	80.30	81.40	86.07	73.10	86.35	83.50	70.70	75.50	77.00	85.75	87.05	[illegible]	16
1-15 hr.	84.90	86.47	87.03	78.30	87.70	87.55	85.40	71.81	81.00	85.37	90.09	100	9
16-30 "	84.61	85.32	87.70	77.82	87.09	82.67	74.25	75.09	76.10	87.06	88.48	245	15
31-60 "	84.59	85.62	86.21	77.08	81.21	82.00	80.08	70.97	76.35	86.04	80.84	141	11
Over 60	79.07	87.00	86.[illegible]	81.07	88.81	87.77	78.11	76.00	75.35	88.40	88.50	130	16

Table 16. Mean of Grades as to Qualifications. Riley County, 1933-1934.

Qualifications	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	Cases	District
High School	64.11	69.04	74.00	64.04	76.84	85.04	78.00	65.50	60.50	65.75	77.54	267	19
1-15 hr.	71.15	74.72	81.85	70.23	79.15	86.52	79.65	64.80	61.60	60.50	81.64	220	9
16-30 "	75.71	75.65	82.00	78.57	77.21	84.40	77.77	68.16	63.80	64.00	79.40	465	17
31-60 "	70.77	76.00	83.00	80.09	77.42	82.41	80.84	70.50	67.03	65.50	82.00	135	11
Over 60	75.00	77.54	81.25	77.87	77.35	83.61	78.89	61.05	61.00	62.72	79.17	185	10

Table 17. Mean of Grades as to Qualifications. Riley County, [illegible].

Qualifications	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	District	Cases
High School	78.20	81.70	82.80	86.55	77.95	77.58	86.00	75.04	68.44	77.04	78.34	17	50
1-15 hr.	76.41	86.11	80.71	87.11	87.11	81.05	86.28	76.70	76.58	80.55	81.47	16	150
16-30 "	79.00	87.22	82.83	90.20	85.05	81.30	87.65	76.90	70.30	80.05	81.30	17	108
31-60 "	75.85	80.87	78.67	86.00	77.80	78.70	87.90	78.00	69.50	79.60	77.40	7	65
Over 60	79.58	86.14	82.14	84.00	81.20	84.20	80.00	81.20	75.20	78.86	80.00	11	274

Table 18. Mean of Grades as to Qualifications for all Years. Riley County.

Qualifications	Geog.	Phys.	Kans. Hist.	Read. & Class.	Spell.	Agric.	Writ.	Arith.	Lang.	U. S. Hist.	Civil Gov.	Mean	Cases
High School	74.42	74.72	80.60	81.86	80.96	82.04	81.22	70.78	68.54	75.61	81.44	77.482	707
1-15 hr.	76.01	82.46	83.30	81.50	82.71	85.87	83.75	75.00	75.00	80.41	84.88	80.783	532
16-30 "	80.07	82.80	84.31	83.40	82.45	82.86	79.92	75.50	75.09	78.17	83.15	80.624	311
31-60 "	77.10	82.79	83.60	81.30	78.62	82.05	82.77	77.13	72.84	77.84	83.16	79.199	360
Over 60	77.72	81.09	86.65	80.01	82.45	85.85	79.18	78.01	72.21	78.07	82.50	79.804	757

qualification group to the high, however, trends can be definitely noticed that places the achievements made in the highest qualification group in favor over the low qualified group.

The means of each subject, with the exception of reading and classics and writing, are higher in the 'over 60-hour' group when compared to the high school group. One can infer that qualification of teacher has the least effect on reading and classics and writing to achievement of pupil in those subjects. Kansas history, physiology, arithmetic, and grammar show the greatest progress when one compares the low qualification group with the high.

One can conclude from Table 10, that qualifications of teachers do have some bearing to achievement of eighth grade graduates. This is especially true in those subjects that require considerable instruction in fundamentals, as arithmetic, language and grammar, while the least difference is seen in reading and classics, writing, and history.

Figure 2 is a column graph showing by comparison the mean grades for the three-year period in Riley County, and the qualifications of the teachers. Thus, it will be seen that achievement of students with teachers of high school preparation have a mean of 77.48. The mean goes up to 80.70 when teachers have from one to fifteen hours preparation, but falls to 80.20 with 16 to 30 hours preparation. The fourth group falls to 79.18 with 31 to 60 hours, but goes back up to 79.90 with over 60 hours preparation.

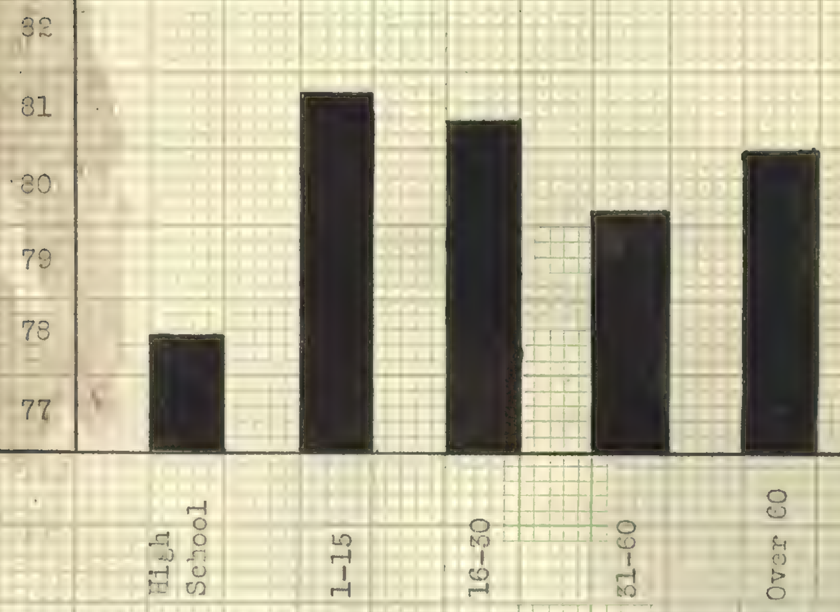

Figure 2. Column graph comparing mean grades with qualifications of teachers in Riley County.

A study of the graph leaves no doubt as to the effect of achievement of pupils when eighth grade students have teachers with high school preparation. Teachers with college preparation are superior in each group, in instruction, if one is to believe the achievement of their students to be a good criteria to judge from.

Students whose teachers have a very minimum of college training of one to fifteen hours have an average achievement of 80.79, or 3.31 points higher than those with high school qualifications. Those with 16 to 30 hours have 80.294, or 2.81 higher, and those with 31 to 60 hours of work scored an average achievement of 79.19, or 1.71 points higher. Teachers whose qualifications were over 60 hours, had students make an average of 79.90 in all subjects, or 2.42 points higher than the high school group.

It seems quite likely that better prepared teachers possess certain teaching skills that the others do not have and that their skills are reflected in the achievements of the students.

CONCLUSIONS

1. The time devoted to the daily study program in the rural schools varies a great deal with the size of the school. Two typical programs contrasted in two rural districts near Wakefield, Kansas, show district 77 having 30 classes daily, with an average of 10.3 minutes devoted to each class. This school has 17 pupils enrolled, and all eight grades. District 8, with seven pupils enrolled, has 18 daily classes, with an average of 15.5 minutes devoted to each class. The difference in time allotted to each class is 5.2 minutes.

2. The significance of the superiority in achievements of the graduates from small rural schools compared with those from large schools, as found in this survey, is questionable. The trend of achievements is slight between the small, medium, and large school. In Riley County, the small schools were but .27 of a point superior to the medium schools, and .54 point superior to the large schools.

The fact that the marks used in this study are, to some extent, judgment measures of different teachers, causes the reliability of such marks to be somewhat limited.

3. The trend of achievements in Clay County is somewhat more pronounced, when the small schools are compared to the medium and large schools. The mean difference is 1.80 points when the small schools are compared to the large schools, however, the small compared to the medium gives a difference of .73 point in achievement in favor of the medium sized schools. The difference of achievements in Clay County is somewhat higher than Riley County, when the small schools are compared to the large schools.

4. Rural school graduates receive slightly better marks when graduated from our smaller rural schools when compared to our larger schools.

5. Language and grammar are the most difficult subjects for Riley County students. The achievement in language and grammar is lower in our large schools than in the smaller ones. Arithmetic is second in degree of difficulty, and civil government third.

6. In Clay County, language and grammar is the most difficult subject, with arithmetic second. Achievements are superior in the small schools to the large schools in these particular subjects.

7. Over a three-year period in Riley County, the average grades showed some variation. The average for all subjects in 1932-1933 was 82.02, fell to 74.46 in 1933-1934, and rose to 81.34 in 1934-1935.

8. Very little variation appears in the average grades for the three-year period in Clay County. The achievements for 1935-1936 were 80.84, 80.15 in 1936-1937, and 80.17 in 1937-1938.

9. Comparison of mean grades in Riley and Clay Counties shows Riley County pupils to be superior. However, since the years 1932 to 1935 in Riley County are compared to the years 1935 to 1938 in Clay County, the evidence is not conclusive. Examinations may have been more difficult one year over another, or teaching methods may have changed. The greatest variation appeared in arithmetic, language and grammar, and United States history, with mean differences of 14.46, 15, and 12.17 for the three enrollment groups combined.

Kansas history and agriculture show the smallest variations when the two counties are compared, with a mean difference of 4.01 and 4.02 for the three combined groups.

10. During the three-year period 53 teachers taught in Riley County with high school preparation, 35 with one to fifteen college hours, 49 with 16 to 30 college hours, 29 with 31 to 60 college hours, and 37 with over 60 college hours.

11. Comparison reveals a superiority of achievement by pupils taught by the better qualified teachers. Eighth grade graduates in schools taught by teachers who had from one to fifteen hours of college training excelled those in schools taught by teachers with high school preparation only, by a margin of 3.31 points.

Teachers with 16 to 30 college hours had pupils superior by 2.81 points, those with 31 to 60 college hours had students 1.72 superior, and the pupils of those with over 60 college hours were better by 2.42 points when compared to pupils of the high school prepared teacher.

12. The mean of each subject, with the exception of reading and writing, is higher for the group of teachers having the most preparation, when compared to the group having the least.

Students in the fundamental subjects of arithmetic and language and grammar show the most progress when their teachers are better qualified.

13. Will the variation in size of our rural schools, and the qualifications of the teachers justify keeping our schools as they are? There is no denying the fact that such schools are costly to the taxpayer, and that the type of instruction the children receive is questionable. However, as referred to before the problem of preparing one room teachers will persist, and while they may grow less in number as time goes on, we shall have them with us long enough, and in sufficient numbers to justify our giving them far more attention.

Achievements gained in our rural schools are close in comparison, when the size of the school is considered as a factor. If the small rural school is to be put out of business, it must be because of the high cost of maintenance, and because the graded school can offer many more social and educational advantages.

ACKNOWLEDGMENTS

The writer wishes to acknowledge his indebtedness to Dr. V. L. Strickland of the Department of Education, under whose guidance this study was made. Thanks are also due to Miss Agnes Engstrand and Owen Panton, County Superintendents of Riley and Clay Counties. Appreciation is also expressed to the author's wife, Mrs. Hazel Fleck, who aided so greatly in the preparation of this thesis.

BIBLIOGRAPHY

(1) Markham, W. T.
Summary Report. Topeka, Kansas. State Dept. of Ed. Circular 322-M. 4 p. June 30, 1937.

(2) McIntosh, H. W. and Schrammel, H. E.
A comparison of the achievement of eighth grade pupils in rural schools and graded schools. Elem. School Jour. 31:301. Dec. 1930.

(3) Clem, O. M. and Hovey, C. W.
Comparative achievement of village school pupils and rural school pupils. Elem. School Jour. 34:269. Dec. 1932.

(4) Odell, C. W.
A few data concerning the comparative efficiency of one room and two to four room rural schools. School and Society, 19:530. May, 1924.

(5) Covert, T.
Educational achievements of one teacher and of larger rural schools. U. S. Bureau of Education. Bul. 15:1-23. 1928.

(6) Sherwood, H. N.
Equal educational opportunities. N. E. A. Jour. 14-15:173. June, 1926.

(7) Hagie, C. E.
Higher standards for elementary school teachers. School and Society, 28:824. Dec. 1928.

(8) Andrick, E. L.
A comparative study of high school grades of graded and rural school graduates in some central Kansas towns. Unpublished thesis, Kansas State College of Agriculture and Applied Science. 44 p. 1936.

(9) Baldwin, R. D.
Future need in the preparation of rural teachers - abstract. N. E. A. 67:539. 1929.

(10) Sanford, C. G.
The preparation of rural teachers - abstract. N. E. A. 67:506. 1929.

(11) Hacker, L. W.
The education of rural teachers. N. E. A. Jour. 20-21:65.
Feb. 1932.